

AMENDMENTS

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application

Listing of Claims

1. (currently amended) A method of extracting nucleic acids from a material containing nucleic acids using a nucleic acid-binding particulate carrier which contains silica or its derivative, the method ~~comprising~~ essentially consisting of the steps of:

(a) mixing the material containing nucleic acids, a nucleic acid-binding particulate carrier having a particle diameter of 0.5 to 15.0 μm , a pore diameter of 80 to 250 nm and a pore volume of 0.2 to 5 ml/g, and a nucleic acid extraction solution for allowing the nucleic acids to adsorb to the particulate carrier, to thereby bind the nucleic acids to the particulate carrier, the nucleic acids being bound to the silica particulate carrier via hydrogen bonds formed between hydroxyl groups of silica of the particulate carrier surfaces ~~on the particle surfaces of the carrier~~ and bases of the nucleic acids;

(b) separating a composite of the nucleic acids and the particulate carrier from the mixture obtained in Step (a) to remove contaminants: and

(c) eluting and collecting the nucleic acids from the composite of the nucleic acids and the particulate carrier.

2. (canceled)

3. (previously amended) A method according to Claim 1 wherein the particulate carrier containing silica or its derivative is a magnetic particulate carrier.

4. (original) A method according to Claim 3 wherein the magnetic particulate

carrier contains a superparamagnetic metal oxide.

5. (original) A method according to Claim 4 wherein the particulate carrier contains, as a superparamagnetic metal oxide, to 60 wt.% of an iron oxide relative to the total weight of the particulate carrier.

6. (original) A method according to Claim 1 wherein the particulate carrier has an outer surface area of at least 5 m²/g.

7. (original) A method according to Claim 1 wherein the particulate carrier has a specific surface area of 5 to 800 m²/g.

8. (original) A method extracting nucleic acids from a material containing nucleic acids, the method comprising the step of:

(a) mixing the material containing nucleic acids, a nucleic acid-binding particulate carrier having a particulate diameter of 0.5 to 15 µm, a pore diameter of 50 to 5000 nm and a pore volume of 200 to 5000 mm³/g, and a nucleic acid extraction solution for allowing the nucleic acids to absorb to the particulate carrier, to thereby bind the nucleic acids to the particulate carrier;

(b) separating a composite of the nucleic acids and the particulate carrier from the mixture obtained in Step (a) to remove contaminants; and

(c) eluting and collecting the nucleic acids from the composite of the nucleic acids and the particulate carrier.

9. (original) A method according to Claim 1 wherein the nucleic acids are DNA and /or RNA.

10. (original) A method according to Claim 1 wherein the material containing nucleic acids is a biological material.
11. (original) A method according to Claim 10 wherein the biological material is a material selected from the group consisting of animal-derived blood, urine, saliva, other body fluids; plant-derived biological materials; microorganism-derived biological materials; cells separated from animals, plants and microorganisms and cultures of said cells; and partially purified nucleic acids.
12. (previously amended) A method according to Claim 1 wherein the nucleic acid extraction solution contains a chaotropic substance.
13. (original) A method according to Claim 12 wherein the chaotropic substance is at least one compound selected from the group consisting of guanidine salt, potassium iodide, sodium iodide, (iso)thiocyanate, sodium perchlorate and urea.
14. (original) A method according to Claim 12 wherein the chaotropic substance is guanidine thiocyanate and/or guanidine hydrochloride.
15. (previously amended) A method according to Claim 1 wherein the composite of the nucleic acid and the particulate carrier obtained in Step (b) is washed with a first washing solution containing a chaotropic substance and a second washing solution containing alcohol.
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16. (original) A method according to Claim 15 wherein the first washing solution contains as a chaotropic substance at least one compound selected from the group consisting of guanidine thiocyanate, guanidine hydrochloride and sodium thiocyanate.

17. (original) A method according to Claim 15 wherein the second washing solution contains an alcohol at a concentration of 40 to 100%.

18. (previously amended) A method according to Claim 1 wherein the composite of the nucleic acid and the particulate carrier obtained in Step (b) is washed with a washing solution containing ethanol at a concentration of 70% and a washing solution containing ethanol at a concentration of 99%.

19. (original) A method of detecting a target nucleic acid, comprising extracting nucleic acids by a method according to Claim 1 and amplifying the target nucleic acid by amplification reaction, and detecting the target nucleic acid.

20. (original) A method according to Claim 19 wherein the amplification reaction is polymerase chain reaction.

21. (original) A method according to Claim 19 wherein the amplification reaction is nucleic acid sequence based amplification.

22. (original) A method according to Claim 19 wherein the target nucleic acid is detected by nucleic acid hybridization assay.

23. (original) A kit for extracting nucleic acids, comprising a nucleic acid-binding particulate carrier having a particle diameter of 0.5 to 15.0 μ m, a pore diameter of 50 to 500 nm and a pore volume of 20 to 5000 mm³/g, a nucleic acid

extraction solution for adsorbing nucleic acids to the particulate carrier, and a nucleic acid eluate for eluting the nucleic acids from a composite of the nucleic acids and the particulate carrier.

24. (canceled)